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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/729,538	12/05/2003	Kenneth Perlin	NYU-9	1906

7590 12/16/2004

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EXAMINER
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MAHONEY, CHRISTOPHER E

ART UNIT	PAPER NUMBER
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2851

DATE MAILED: 12/16/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

**Office Action Summary**

Application No.

10/729,538

Applicant(s)

PERLIN ET AL.

Examiner

Christopher E Mahoney

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 6 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☐ Responsive to communication(s) filed on \_\_\_\_.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-29 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-6, 20, 21 and 29 is/are rejected.
- 7) ☒ Claim(s) 7-19 and 22-28 is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
  - ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_.
  - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)  
Paper No(s)/Mail Date \_\_\_\_.
- 4) ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date. \_\_\_\_.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: \_\_\_\_.

## **DETAILED ACTION**

### ***Drawings***

New corrected drawings in compliance with 37 CFR 1.121(d) are required in this application because figures 9 and 10 are not clear. Only figures 9 and 10 need to be replaced. Applicant is advised to employ the services of a competent patent draftsman outside the Office, as the U.S. Patent and Trademark Office no longer prepares new drawings. The corrected drawings are required in reply to the Office action to avoid abandonment of the application. The requirement for corrected drawings will not be held in abeyance.

### ***Claim Objections***

Claim 1 is objected to because of the following informalities: Claim 1 recites that the modulation is dependant on distance of the scattering particle but does not define the distance from what (e.g. from the light source). Appropriate correction is required.

### ***Claim Rejections - 35 USC § 102***

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

Claims 1-2, 5-6, 20, and 29 are rejected under 35 U.S.C. 102(e) as being anticipated by Tsao (U.S. Patent No. 6,765,566). Tsao teaches an apparatus for producing a volumetric display

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comprising a scanning collimated light source (second laser beam frequency) (col. 1, line 40, col. 12, line 21) that creates an image by illuminating a suspension of light scattering particles (photoluminescent material which is already excited by first frequency) in an optically transparent medium, where the brightness of the beam is modulated at each moment in time by an amount that is dependant upon the momentary direction of the beam and also on the distance of the scattering particle encountered by the beam at that moment. (The second beam intersects the first beam at a known location and time, therefore the modulation is produced according to the desired image at that point at that time.) The applicant is directed to review col. 1, lines 18-50, col. 12, lines 8-65 and figures 21-24. Rotating mirrors (i.e. col. 10, lines 19, 38-44) are used. Col. 11, lines 38-50 discloses screen sweeping of 2D (claim 11 for example) images.

***Claim Rejections - 35 USC § 103***

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 3-4 are rejected under 35 U.S.C. 103(a) as being unpatentable over Tsao (U.S. Patent No. 6,765,566) in view of Palovuori (U.S. Patent No. 6,819,487). Tsao teaches the salient features of the claimed invention except for dust in air as the screen. Palovuori teaches in col. 8, lines 11-14 that it was known to use dust in air as the projection screen. It would have been obvious to one of ordinary skill in the art at the time the invention was made to utilize the features taught by Palovuori for the purpose of risk free materials.

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Claims 21 are rejected under 35 U.S.C. 103(a) as being unpatentable over Tsao (U.S. Patent No. 6,765,566) in view of Sullivan (U.S. Patent No. 6,100,862). Tsao teaches the salient features of the claimed invention except for using an IR laser. Sullivan teaches in col. 1, line 43 that it was known to use an IR laser. It would have been obvious to one of ordinary skill in the art at the time the invention was made to utilize the features taught by Sullivan for the purpose of creating the illusion of creating images without a visible light source.

#### ***Allowable Subject Matter***

Claims 7-19 and 22-28 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

#### ***Conclusion***

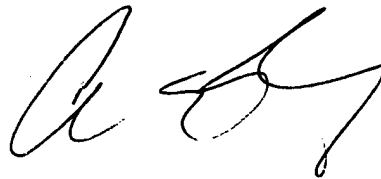
The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Christopher E Mahoney whose telephone number is (571) 272-2122. The examiner can normally be reached on 8:30AM-5PM, Monday-Thursday.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Judy Nguyen can be reached on (571) 272-2258. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

A handwritten signature in black ink, appearing to read 'C. Mahoney', with a stylized flourish at the end.

Christopher E Mahoney  
Primary Examiner  
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